

DAKE (W<sup>m</sup> C)

*Begin to read at page 22.  
For treatment*

PATHOLOGY AND TREATMENT

OF

*B. 116*

# DIPHTHERIA.

BY

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NASHVILLE:

WHEELER BROTHERS.

1877.



# DIPHTHERIA:

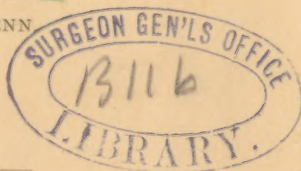
## ITS PATHOLOGY AND TREATMENT.

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A REPORT OF ONE HUNDRED AND SEVENTY-SIX CASES,  
TREATED, DURING A PERIOD OF ELEVEN MONTHS,

✓  
By WM. C. DAKE, M. D.,

NASHVILLE, TENN



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*Enlarged from a Paper read at the Third Annual Meeting of the Homoeo-  
pathic Medical Society of Tennessee, at Memphis, Sept. 19, 1877.*

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## PREFACE.

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AFTER preparing a report of my cases of Diphtheria, treated during a period of eleven months preceding the meeting of our State Society, I was urged by several members to enlarge my paper, so as to make a pamphlet presenting to the profession a more particular statement of the characteristics and treatment of a disease with which I had become familiar by an extended and careful clinical experience.

It is my purpose to supplement, in a measure, the valuable works of Neidhard, Oehme and others, presenting the latest views as to the pathology and treatment of a much-dreaded and quite prevalent disease.

If I shall be able to enlighten one single member of the profession, so that he may save a single life in jeopardy with Diphtheria, I shall be amply rewarded for the time and labor devoted to the preparation of this little monograph.

Regarding my cases, embraced in this report, I may mention that every one had the undoubted characteristics of Diphtheria.



# DIPHTHERIA.

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## HISTORY.

**D**IPHTHERIA was but little known in this country until a quarter of a century ago, though it is one of the oldest epidemic diseases which preys upon the human race, having prevailed in Egypt about the beginning of the second century.

In the sixteenth century the disease appeared epidemically in Holland, shortly afterward in Spain; and from that time to the present most of the countries of Europe and America have, at one time or another, suffered from its inroads.

The first reported appearance of diphtheria, in an epidemic form, in the United States, was in California, in 1856; and wherever the disease has prevailed it has generally been attended with remarkable fatality.



We find mention by *Dr. Lea J. Williamson*,<sup>1</sup> of a severe epidemic of the disease occurring at Sardis, Mississippi, in August, 1859. And portions of Georgia, Alabama and Tennessee have suffered from its ravages since that period.

Whole families have been swept away by it.

*Trousseau*<sup>2</sup> mentions a household of eighteen persons in which only two escaped death.

*Dr. Brown*,<sup>3</sup> of Haverford West, treated two hundred cases, of which forty terminated fatally.

*Mr. Ozanan* gives a summary of thirty-nine epidemics of diphtheria, from 1657 to 1805, showing a mortality of eighty per cent.

The *Académie de Médecine*<sup>4</sup> publishes tables of epidemics from 1805 to 1830, giving a mortality of twenty-five per cent.

On an average, in later years,<sup>5</sup> the death rate has been about twenty per cent. under ordinary treatment.

Under Homœopathic treatment the mortality has been much less. *Dr. Neidhard*, one of the most successful physicians of the new school, reports but

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<sup>1</sup> American Journal of Medical Sciences, p. 100, 1859.

<sup>2</sup> Trousseau's Clinical Lectures, Vol. I, p. 350.

<sup>3</sup> British Journal of Homœopathy, Vol. XVI, p. 637.

<sup>4-5</sup> Neidhard on Diphtheria, p. 100.



two deaths out of three hundred cases treated in Philadelphia during a period of five years.<sup>1</sup>

*Dr. J. P. Dake*,<sup>2</sup> during an epidemic of four months, at Pittsburgh, in 1861, treated one hundred and ninety-three cases, losing but seven of the number.

In a period of two months, in the fall of 1875, I lost two out of twenty-six cases treated, most of them being of a most malignant type.

In September, 1876, the disease re-appeared in our city, as a severe epidemic.

From that time to the present there have been cases constantly occurring, scarcely a week passing without fresh ones coming under treatment.

The disease has prevailed in a malignant form, and the deaths from it have been many.

In some families, under the common modes of treatment, three and sometimes four deaths have taken place, within a few days' time; so that the disease has been looked upon with much dread.

In regard to rates of mortality, it must be remembered that the malignancy of the disease varies in different seasons, different localities, and different persons.

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<sup>1</sup> Neidhard on Diphtheria, p. 165.

<sup>2</sup> North American Journal of Homœopathy, Vol. X, p. 424.

## PATHOLOGY AND ÆTIOLOGY.

Numerous theories have been, and are at the present day, held regarding the nature of this disease.

*Bretonneau*,<sup>1</sup> at first, taught that Diphtheria must be considered as a local disease; but at a later date conceded that blood poisoning was one of its essential characteristics.

*Virchow* called attention to an exudation *into* the substance of the mucous membrane in diphtheritic inflammation, followed by gangrene of this membrane from deficient nourishment, and distinguished this type of inflammation from the croupous by the exudation in the latter being *upon* the surface of the mucous membrane.

*Wagner*<sup>2</sup> has endeavored to prove that diphtheria and croup are one and the same disease, the only difference being, that one is confined to the throat while the other affects the air passages; and that the false membrane is owing to a peculiar met-

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<sup>1</sup> Ziemssen's Cyclopædia, Vol. I, p. 576.

<sup>2</sup> Ziemssen's Cyclopædia, Vol. I, p. 577. See also Wagner's General Pathology, American Translation of 6th German edition, p. 264 *et seq.*

amorphosis of the epithelium—a fibrinous degeneration of its cells—not dependent upon a fibrinous exudation upon the surface.

*Buhl* believes that, diphtheria is a general infectious disease and entirely independent of any previously-existing local affection.

Also, that the principal characteristic of it consists in a nuclear or cytoïd growth of the submucous connective tissue, a process which leads to the death of the tissues through compression of the blood-vessels.

According to this author's view the disease in the throat and air passages is not an originally localized affection, but an indication of a general infection, manifesting itself by preference upon the tonsils, in the larynx, etc., as scarlatina upon the skin—mumps in the parotids, etc.

*Prof. Hallier*, of Jena, announced the discovery of one of the higher forms of yeast (ferment) fungi in diphtheritic membranes.

*Dr. Grauwogl*<sup>1</sup> holds that the membranes consist, chiefly, of cells of ferment and microscopic fungi,—(diplosporium fuscum,)—which grow between the cells.

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<sup>1</sup> Raue's Pathology and Diagnostics, p. 121.

That they live and grow at first upon the decomposed particles of food, of which more or less always remains in the fauces, soon rooting deeper, growing into the mucous membrane, compressing its vessels and causing mortification of this structure.

Both *Prof. Hallier* and *Dr. Grauvogl*<sup>1</sup> contend that the fungi are microscopic and take root in the mucous membrane, causing inflammation and introducing the poison into the system before the deposit becomes visible to the naked eye.

*Raue*<sup>2</sup> says that the white, or gray, or yellowish-white mass, which we observe in diphtheria, appears before, or at least simultaneously with, the signs of inflammation; and, therefore, can not be a *product* of this inflammation; but, on the contrary, that this so-called diphtheritic exudate, which is a compact mass from its very first appearance, is the *cause* of the inflamed *state of the mucous membrane*, and its subsequent mortification.

The discovery was made by *Heuter*<sup>3</sup> and *Oertel* simultaneously, as far back as 1868, that the diphtheritic membrane, the subjacent diseased parts and the blood contained, in large numbers, vegetable

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<sup>1</sup> New England Medical Gazette, Vol. XII, No. 5, p. 223.

<sup>2</sup> Raue's Pathology and Diagnostics, p. 121.

<sup>3</sup> Ziemssen's Cyclopædia, Vol. I, p. 577 *et seq.*



organisms, or bacteria, to which the latter gave the name micrococci.

*Oertel*, by a series of experiments, has endeavored to prove that the disease begins as a local affection and afterward develops into a general one, and that the latter is kept up by the former.

That the disease begins at one point, the focus of infection, and thence radiates through the body until by general blood poisoning it renders the organism incapable of life.

He considers croup a simple form of inflammation, in which a fibrinous exudation occurs upon the mucous membrane, and which never can pass beyond the bounds of a local process.

The presence of bacteria in the membrane and in the different organs and tissues has been demonstrated by *Von Recklinghausen*, *Nassiloff*, *Waldeyer*, *Klebs*, *Eberth*, *Heiberg* and others.

The question whether the fungus is the *cause* or an *effect* of the constitutional disturbance is unsettled in the minds of some writers; but in the light of the latest investigations, by able pathologists, there should be no doubt as to its being the *specific cause*.

As to the pathology of the disease, then, following the divisions and modifications as presented by

the Chair of Practice, in the Hahnemann Medical College, Philadelphia, last winter,<sup>1</sup> we find—

- 1st. A hyperæmic state of the mucous membrane, beginning in the epithelium.
- 2d. Cellular infiltration, thickening and whitening of epithelium by exudation, variously called *fibrinous—albuminous—fatty or purulent*.
- 3d. The entrance and presence of fungus—globular bacteria—in the exudation or membrane—these micrococci constituting the specific cause of genuine or constitutional diphtheritis.

In tracing the course of a case we generally notice—

- 1st. A predisposition to croup or throat affections, and then—
- 2d. A sudden chilling, followed by hyperæmia, inflammation and exudation resulting in a false membrane.

In ordinary circumstances the membrane is loosened or disintegrated and thrown out, and so relief is gained; or it becomes a mechanical obstruction, resulting in suffocation and death.

If the atmosphere is damp, favorable to the pres-

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<sup>1</sup> Lectures of Prof. J. P. Dake, M. D.

ence of fungi, or if the room or house has mildewed walls or decaying vegetables in the cellar, the diphtheritic fungi, or bacteria, may be present and may become lodged in the raised, softened and broken epithelium or skin, in such a warm moist bed, growing and multiplying and extending, even into and through the mucous membrane and other tissues, and so, of course, into the blood.

No sooner in the blood than they are carried to all parts of the system, finding an early lodgement in the lymphatic glands, occasioning swelling and sometimes suppuration.

The diphtheritic membrane has been found in almost all parts of the body, on the tonsils, palate, fauces and walls of the pharynx; in the Eustachian tubes, nares, larynx, trachea, bronchi, œsophagus, stomach, intestines, vulva, vagina, and in wounds upon the surface.

As an illustration of the infectious character of the disease, especially of the readiness of the fungus to seize upon broken patches of skin, I may mention that about three years ago a messenger, coming from a house in which we had a bad case of diphtheria, was thrown from his horse, tearing a piece of skin, nearly an inch square, from his knee. After the injury and before the wound had been

dressed the gentleman visited the sick room, remaining in it for an hour or more.

Though not within two miles of the place again, for weeks, in a few days the broken patch was covered with a thick white membrane, accompanied with much swelling of the leg, and signs of phlebitis from the groin down to the foot.

The membrane formed there again after being once removed. Shortly afterward a child of the injured man had diphtheria in nose and throat; then a lady in the house had it severely in the throat, while another had it in her ears.

The residence of the injured man was fully two miles from the home of the patient for whom he came to us at the time of his accident.

Though all the family recovered, it was months before the leg was fit for use.

Up to the appearance and penetration of the *fungus*, croup and diphtheria are not essentially different.

*Oertel* vaccinated animals<sup>1</sup> with diphtheritic membrane and produced a general infection, while vaccinations with the croup membrane merely produced a local irritation, sometimes with croupy exudation.

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<sup>1</sup> Raue's Record Homœopathic Literature, 1874, p. 111.



In croup there is no blood poisoning—no glandular swellings—no tissue destruction.

Death comes from lack of oxygen and excess of carbonic acid, or simple mechanical strangulation.

The fungus has been found, in all or nearly all cases of severe diphtheria, where the membrane has been examined well with the microscope.

A few months ago we had a case, in which the result was death, where a piece of thick, white membrane was thrown off from one of the tonsils. With our microscope, of moderate power, we failed to discover any of the peculiar fungus, and so likewise did *Dr. W. H. Winslow*, of Philadelphia, to whom we sent a piece for examination.

I should mention that the fragment examined by Dr. Winslow had been in strong alcohol several weeks before he saw it.

Though not discovered, we can but believe that the peculiar fungus was present when the membrane came from the tonsil.

Fungus flourishes most in a warm damp atmosphere and upon decaying organic matter.

It has been observed, everywhere, worse in the damp weather of fall and spring, and in a warm wet winter or wet cool summer.

It has been worse in warm wet countries than in cold and dry.

Though the fungus, found in diphtheria, is considered much the same as that seen upon mouldy bread and decaying vegetables and wet wall paper, it must, in some respects, be essentially different; otherwise in every house and locality where such mould appears, every case of tonsillitis and every abrasion of skin must result in a case of diphtheria. The fungus of diphtheria must, therefore, be of a specific character, occurring only in certain places and under peculiar circumstances.

As to persons, doubtless a scrofulous diathesis so affects the character of the tissues involved as to make them a more attractive field for the ready planting and rapid growth of the fungus; and hence such persons will have more of the peculiar blood poisoning and gland irritation.

All observers agree that persons subject to laryngitis, tonsillitis, otitis, or to erysipelas, glandular swellings or aphthous ulcerations, have the disease worse than others. Among such the mortality is surely greater.

According to *Oertel*,<sup>1</sup> the process caused by inoculation is entirely a specific one, and can not

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<sup>1</sup> Raue's Record Homœopathic Literature, 1874, p. 111.

be produced either by chemical, septic, decaying or fermenting substances.

The infection spreads from the spot of inoculation in centrifugal directions, by means of the blood and lymph-vessels through the tissues, without choosing any particular plan for localization.

Healthy and unabraded skin and mucous membrane is little apt to take the infection, while an injured surface or catarrhal state greatly increases the liability to its infection and propagation.

Before passing on I should mention that, in the epidemic visitations of diphtheria observed by my father, years ago, at Pittsburg, and in those observed by us both in this city and vicinity, there is a marked difference in the obvious characteristics of the membrane in different cases.

Sometimes it is seen on the tonsils or palate or back wall of the pharynx, at first as a light, rough, cheesy deposit, more than an epithelial exudate.

This may be removed, in some cases, or partially broken up by mechanical means and remedies to be mentioned hereafter.

Again it resists mechanical and other means and, in one day, may thicken and harden and extend so as to prove its malignant character beyond all question.

In other cases the membrane, at the outset, presents a smooth, hard, pearly and almost shining appearance, as immovable as the mucous membrane itself. When this is the case there must be earnest work to save the patient.

The difference in the first white patches, which appear, as I have mentioned, may be owing to the absence of the peculiar fungus in one case and its presence in another ; or to a greater or less amount of it present ; or again, to some constitutional peculiarity independent of the fungus.

When the patches, in all cases or nearly all, are of the rough, cheesy character, it need not be surprising if all or nearly all patients recover ; nor should it be surprising that, a high rate of mortality appears when the patches are of the smooth, white, tenacious character, especially when accompanied with much glandular swelling and a putrid breath.

In regard to the germs of the disease there is little to be gained by an inquiry as to their *origin*.

As mentioned, at the outset, it belongs to a remote antiquity.

Whether, from the first historical period of diphtheria, its germs have been in active existence among men, in one part of the earth or another ; or



whether, those germs occur, from time to time, by some process of evolution, as a product of some other disease, animal or vegetable; or under what circumstances, or from what causes those germs are imported or generated, and how they may be avoided, are questions that may be pursued with some profit.

I confess that, to this hour, the accumulation of facts and their generalization, will not warrant us in many satisfactory conclusions regarding the ætiology of diphtheria.

Many theories have been put forward and much has been written about *sewer gas*, *impurities of drinking water*, *etc.*, as the causes of the disease; but not one of them is sustained by sufficient facts.

Localities where no sewers exist, where the greatest cleanliness is exercised, and where the water is as pure as nature furnishes, the disease has been as prevalent and fatal as in the most crowded cities where sewer gases and filth are supposed to abound.

It has been in country places as well as crowded cities, in localities high and dry as well as low and damp, and in palaces as well as hovels.

But, in speaking of the prevention and treatment of the disease in another place I shall present some of the fruits of observation and inquiry regarding its causes and character.

## TREATMENT.

I shall here present the course of treatment as followed in our home practice, and taught by my father in his Philadelphia lectures.<sup>1</sup>

In looking for remedies, we must be governed by the symptoms presented, and also the history and circumstances of the case.

For convenience, we may divide the course of diphtheria into different *stages*, the first presenting in two forms, that of hyperæmia from *chill*, and hyperæmia from *disordered stomach*.

### FIRST STAGE.

The fungus, which gives type to the disease, does not attack persons in health. There must be as already mentioned, an hyperæmic mucous membrane, an inflamed and roughened epithelium, or a broken skin, upon which the fungus may locate and make attachment.

The hyperæmic or inflamed condition usually comes from cold, a chill; but may also arise from a disordered condition of the stomach.

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<sup>1</sup> Winter of 1876-77, in Hahnemann Medical College.

It must then be apparent that the attendant symptoms are not the same in both cases; and further, that we must look for two different classes of remedies early in the treatment.

Then if called while there is yet chilliness and a feeling of prostration,

**Camphor** is the remedy. Two drops of the first decimal attenuation, on sugar, every twenty minutes until reaction is established.

If called after reaction is established, and there is fever, hot skin, accelerated pulse, thirst, with only slight soreness in the throat, as yet,

**Aconite** is the remedy; a dose every hour until the fever is reduced, or other remedy called for.

Generally, medical aid is not summoned until the periods for camphor and aconite are past, and the tonsils and palate are inflamed and quite sore, then other remedies are indicated, namely:

**Capsicum:** for sensation of *heat* in the throat, pain in swallowing as from soreness, and pain when not swallowing, of a drawing, pinching character; heat and throbbing in the head, flushed face, epistaxis, fever and chilliness, thirst, nausea, congested and inflamed appearance of the palate and tonsils.

**Belladonna :** for similar symptoms, with a greater degree of soreness and inflammation, involving the sub-mucous and glandular tissues, as indicated by swelling and more difficult deglutition ; great restlessness, extreme dryness in the mouth with no great thirst ; very red tongue with elevated papillæ, deep redness, almost purple color, of palate, tonsils and fauces.

*Capsicum* is called for more when the inflammation involves the mucous membrane chiefly and *Belladonna* when the inflammation is deeper and there is more profound erethism and nervous excitement.

Beside these remedies there are others which may be indicated, such as *Apis*—*Bryonia*—*Lachesis* and *Phytolacca*, but they are not called for so often, nor are they generally as efficient as the two which I have presented for inflamed throat.

† **Gargles.** In all cases of inflamed throat a *hot water* gargle is useful, but when diphtheria is prevalent a better gargle is *alcohol* and hot water, equal parts.

**Mercurius Iodatus :** is indicated when, beside the inflammation, which I have described, there is considerable swelling of the tonsils, submaxillary or parotid glands ; nasal obstruction or fluent coryza



with general soreness and stiffness of the neck, and offensive breath.

We have given it, one or two doses in twenty-four hours, with capsicum or belladonna between times, as indicated, every two or three hours.

I should say, in regard to Mercurial preparations generally, that in our practice they have shown very little efficacy. I am skeptical as to their good influence in diphtheria, in any form or dose; and am very sure of their bad influence, in the form of calomel and blue pill, as I have known them used in the common practice.

I stated that the sore throat might arise from disordered stomach, acidity, pyrosis, etc., as well as from cold.

When the stomach is thus the seat of trouble, there will be sore throat of a *less acute* and painful character, little or no swelling at first, but a white deposit on the tonsils or walls of pharynx, cheesy, rough, but not very prominent or persistent—more of the *oidium albicans* or of the *aphthae*.

In this form of sore throat the best remedy is

**Nitric Acid:** which we use most successfully in the first decimal attenuation.

The special indications for it are the following—  
Burning of the tongue, mouth or pharynx—redness and soreness of the mucous membrane, ptyalism, white and ulcerated spots in the mouth and throat, obstructed nares and fluent coryza, epistaxis, putrid smelling breath, urging to urinate frequently, red or whitish deposit in urine; or hoarseness, dry barking cough, worse at night; earache, pains in various parts like rheumatism, swelling and inflammation of face, like erysipelas; loss of appetite and aversion to food; nausea, pain in stomach; paleness, debility, perspiration; miliary eruption with itching; sloughing and gangrene in throat.

We have thus, in the effects of this acid, a picture of diphtheria in some of its worst forms, not alone in its first stages, but its last as well.

In its administration we put about twenty drops, of the attenuation already mentioned, in six tablespoonfuls of water, giving to a patient over ten years of age two teaspoonfuls every one, two, or three hours, as the case may require, and to a patient under ten years, one teaspoonful. We employ the Capsicum or Belladonna, if called for, as intercurrent, increasing the interval between doses of the acid, while doing so.

**Arsenicum** is indicated when there is nausea and vomiting, diarrhœa, thirst—great prostration and palor. We usually employ the second or third decimal trituration. We have employed Donovan's Solution very successfully in some such cases, especially where the patient had been subject to glandular or catarrhal affections.

Another remedy, strongly endorsed by Dr. Neidhard, in cases such as I have just described, is the

**Chloride of Lime**—Liquor Calcis Chlorinatæ—the special indications for which are given in his valuable work on diphtheria.

The Formula for the preparation of this remedy is not found in some editions of the U. S. Dispensatory, but is given in the *Hahnemannian Monthly*, Volume X, p. 329, viz.:—"Take of chlorinated lime one pound (avoirdupois), distilled water one gallon (imperial measure), mix well the water and chloride of lime by trituration in a mortar, and having transferred the mixture to a stoppered bottle, let it be well shaken several times for the space of three hours; pour out now the contents of the bottle on a calico filter; let the solution which passes through be preserved in a stoppered bottle. Sp. grav. 1.035, Br."

I should here mention that, in the use of the *chlorinated lime* we have found it producing a great degree of *dryness* of the mucous membranes, in nasal ducts, mouth and throat, a seeming *suppression* of mucus, which we do not consider desirable. This has been the case when small doses were used as well as when large doses, such as recommended by *Dr. Neidhard*.

Preparations of *Potash* such as the chlorate, bromide and bichromate are also held in much esteem by some practitioners.

In a few cases we have used a gargle of *Permanganate of Potash*, but without satisfactory results.

On account of the nature of diphtheria *Carbolic acid* has been highly recommended, but has not, in our hands, been successful, though we have used it both as a gargle and as an internal remedy. In this form of the first stage as well as in the other, the *alcohol* gargle should be used when diphtheria is about.

I must mention that, some of the remedies which I have presented are employed in later stages and other forms of the disease; but I shall not, on that account, deem it necessary to repeat the indications for their use which I have already given.



## SECOND STAGE.

But let us see about the fungus, the entrance of which characterizes the real disease, or diphtheria in its second stage. When its presence is indicated by the peculiar membrane and its attendant symptoms, some other measures are required beside those already mentioned.

**Alcohol** is indicated by the symptoms and also the pathology, so far as we can understand it, and has been well endorsed by clinical experience.

It quickens the circulation in the parts affected, hastens the detachment of the false membrane and is *death to fungus*.

*Dr. Wallace McGeorge* condemns the use of *Mercurious Iodatus rubrum*, on account of the sloughing and indolent ulcers which follow in cases where the membrane has been removed by its use and says,<sup>1</sup>—

“Alcohol as an adjuvant in the form of a gargle (half water and half alcohol) has worked admirably and superceded the red iodide as a mechanical means of removing the membrane. The gargle should be used every one, two, or three hours, according to the violence of the symptoms and the amount of surface covered, until the membrane is entirely detached. This agent and

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<sup>1</sup> Hahnemannian Monthly, Vol. VIII, p. 17.

Spirits of Camphor entirely kill the membrane: while Nitrate of Silver, Caustic Potash, Corrosive Sublimate, etc., only deaden it for the time being. Hence the necessity of dispensing with these crude and hurtful appliances.

“Remember then, that Alcohol kills the membrane and leaves no ulcer nor wound to be cured afterward.”

As to the *facts* Dr. McGeorge is undoubtedly right, but his philosophy is not so satisfactory. To us alcohol acts as a *medicine*, not an adjuvant merely.

*Dr. Ockford* says<sup>1</sup>—

“Among the remedies I have found most useful is *Alcohol*, used as a gargle, and I would advance as a reason for using it, that it destroys the fungous growth and at the same time admits of the use of the indicated remedy and a strictly homœopathic treatment.”

I would add that alcohol on the patient acts *homœopathically* and on the fungus *destructively*.

*Dr. Grauvogl*<sup>2</sup> recommends the use of French Brandy and water, equal parts, or of rectified alcohol and water, as a gargle every hour, and also as an inhalation.

In regard to the efficiency of this remedy Dr. Grauvogl remarks that, by it the parasite can effectually be destroyed.

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<sup>1</sup> Cincinnati Medical Advance, May, 1877, p. 30.

<sup>2</sup> Raue's Pathology and Diagnostics, p. 122.

*Dr. Oehme*<sup>1</sup> records the successful use of alcohol in a number of cases of diphtheria.

I am aware that one of our writers<sup>2</sup> has condemned the employment of alcohol, in this disease, on the ground that it does not *cure*, that in cases where a gargle of it is used the patient is more liable to a return of the trouble, or to subsequent attacks; but such has not been our experience.

Diphtheria is not one of the diseases the susceptibility to which can be exhausted by one attack; and, no matter what the treatment, it is possible for a patient to have it any number of times, longer or shorter periods intervening, according to his exposure to the specific germs and his susceptibility to their influence.

We feel warranted in speaking quite positively in regard to the use of alcohol in this affection, satisfied that no practitioners have had a more extensive and more carefully noted experience in its use than we during the past five years.

We have observed its effects closely—not alone the immediate but likewise the remote—and have never seen anything unfavorable. After its use

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<sup>1</sup> *Therapeutics of Diphtheritis*, pp. 6, 7 and 8.

<sup>2</sup> *United States Medical Investigator*, Vol. V, No. 2, p. 76.

paralysis is not so apt to follow diphtheria as in cases treated without it.

For patients, old enough to use a gargle, we prescribe it in the form of gargle, pure, or diluted half with hot water.

For young children and infants we prescribe it in the form of Brandy or Whisky toddy, strong as they will take.

In some cases we have used with success and satisfaction a gargle of apple vinegar, pure or dilute.

Another agent has come into use lately—

### **Salicylic Acid.**

Taken upon the tongue it is pungent, slightly sour, irritating the throat, causing heat and sometimes coughing and sneezing.

We have used it, the past two years, in place of the nitric acid, in some cases ; and in others in place of the alcohol.

It acts homœopathically as to the diseased tissues and kills the fungus. We consider the distinction of its influence from that of carbolic acid, mentioned by *Dr. Hale* as very proper.<sup>1</sup>

We have usually given it, morning and night, a

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<sup>1</sup> American Homœopathist, Vol. I, No. 3, p. 94.



powder, say one grain of the first decimal trituration.

It is especially useful in the second form of what I have called the first stage of the disease.

Salicylic acid should be used with care, not given in too large or frequent doses, as we have known severe hemorrhage to follow its excessive use.

In purchasing this article it is important to procure the very best, as there are different qualities on the market.

We have used *Flowers of Sulphur*, pure and in the form of triturations, applying it directly to the affected part, by means of a camel's hair pencil, but it has not given satisfactory results.

In cases where there were, in addition to the indications for nitric acid, cough, catarrhal irritation of throat and especially of the nasal ducts, with a tough stringy discharge from the nose—especially where croup seems threatening—we have given with good results *Kali bichromicum* and *Nitric Acid* in alternation.

My friend, Dr. Enloe, of Edgefield, has also used these remedies in alternation with gratifying success.

### THE CROUPOID FORM.

When the larynx or trachea is the seat of trouble, the ordinary symptoms of croup are presented, except that there is more disturbance of the general health, more mucous irritation and more glandular engorgement and swelling.

In diphtheritic croup the windpipe is seldom first invaded, but is occupied by an extension of the membrane from the pharynx, passing below the epiglottis.

In several cases, where the membrane had entirely disappeared from the pharynx and tonsils, I have known a slight exposure to cold to so irritate the larynx as to occasion its rapid development there.

When the croupoid form exists we have found the following remedies most useful:—

**Spongia:** for paleness of the face and anxious features: stitches in the throat, great dryness of the larynx, with short barking cough; difficult breathing, as from constriction of the larynx and trachea; pain in larynx when pressing upon it; hoarseness; dry cough, worse in the evening and toward morning from a tickling in the windpipe.

The croupoid form of diphtheria is generally con-

sidered incurable, and the common prognosis is death in ninety-nine cases out of a hundred.

But with proper homœopathic treatment such prognosis is not necessary.

We can cure a good part of such cases, with *Spongia* and *Kali Bichromicum*.

The special indications for this last remedy are, briefly these—

**Kali Bichromicum:** Croupy cough, with general catarrhal irritation, in throat and nasal ducts; discharge from nose is tough and stringy; pain in ears; ulcers in fauces; white patches; swelling of parotid glands; red raw tongue; an eruption like measles.

During the last few months we have had four cases of this croupoid form, where patches were visible in the fauces and pharynx, saved we are satisfied, by *Spongia*, *Kali Bichromicum* and *Hepar Sulphur*.

In three of the cases referred to we were called after the chilling and the fever and hyperæmia of the throat were past; and before us were presented,—patients struggling for breath, pale, anxious, with the peculiar crowing cough of croup, swollen tonsils

and submaxillary glands, white and yellowish, elevated patches on the tonsils and uvula.

The fourth patient had an attack of diphtheria of considerable severity and was making a good recovery, when, on the tenth day, cold was taken, while there were yet patches of membrane on the tonsils, and the disease went on with renewed vigor, invading the larynx and trachea.

We prescribed *Spongia*, first decimal attenuation, a dose every hour, and, with advancing relief, the intervals were increased.

We left *Kali Bichromicum*, second decimal trituration, to be substituted for the regular remedy, in case of increased trouble, during the night, especially directing it to be used in place of the *Spongia*, should there be some discharge, thick and tough, from the nasal ducts.

I have already mentioned that we use this preparation of potash also in cases where there is no croup. When there is a discharge of thick, tough, stringy mucus from the *mouth* or *nose* we have used it with the most decided benefit.

**Hepar Sulphur** was given when there were glandular swellings, dryness of nasal membranes, dryness and scraping in throat, with a dry barking cough.



We sometimes gave *Belladonna*, as an intercurrent, with the *Spongia*, or *Kali*, or *Hepar Sulphur*, according to indications.

**Bromine** has been employed in the croupoid form and is highly commended by some able practitioners. Generally we have not had satisfactory results from its use. It has done good in cases following *Spongia*—when that remedy, seemingly indicated, had been given without relief.

As I have said, on a preceding page, in cases, when, in addition to croupy symptoms, there were distinct patches on the tonsils and Nitric Acid was indicated we have given the Acid and *Kali* in alternation—sometimes, also, the Acid and *Spongia*—with marked relief.

In this form of diphtheria, or when the nasal membranes are involved the inhalation of the vapor of *alcohol* is often followed by good results.

I should here remark that, I believe in the use of the *single remedy* whenever the indications are sufficiently clear and our knowledge of the range and measure of the remedy so well defined as to warrant us in depending solely upon it; but I must say, once for all, that the knowledge of drug capabilities, as displayed in works on *Materia Medica*, is yet too

imperfect to enable us, in all cases, to avoid the alternation of remedies. For my part I shall not risk the life of any patient, confiding in my skill, in order to maintain a principle, which contemplates a perfection of pathogenesis which does not exist and, I fear, will not exist for many a year to come.

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### INJURIOUS TREATMENT.

**Tracheotomy.** The operation of Tracheotomy has been resorted to in cases of the croupoid form but with very little success. In ordinary membranous croup, when death is threatening from simple mechanical strangulation, it may be advisable; but when the tissues and blood are invaded by the invisible germs of diphtheria, the same being also in the air, and a wound is made, it would only be to give a fresh field for infection and membranous display. It must therefore be evident, that such an operation can not improve the chances for life while causing much needless pain.

*Trousseau*,<sup>1</sup> long ago said—

“I can not, therefore, too often repeat to you; take care

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<sup>1</sup> Clinical Medicine, Vol. I, p. 372.

that you do not, for any reason whatever, apply blisters; beware of wounds, beware of the very smallest solutions of continuity, and of leech-bites in persons attacked with diphtheria."

**External Applications.** In the ordinary form of diphtheria external applications, such as poultices and packs, are of little if any use, and, we believe, may often prove positively injurious. They keep up too great a degree of heat in the parts affected which must favor the propagation of the fungus and destruction of tissues.

In the croupoid form a slice of old, fat, salty bacon, bound over the windpipe, has been of some benefit.

**Cathartics.** In cases of diphtheria, when the bowels are constipated, anxious mothers often insist upon something laxative, fully persuaded by their old-time physicians, that almost any disease may be removed by free purgation.

In our practice we have found that the worst cases are attended with diarrhœa; and we always look upon such a condition as unfavorable.

If too much fruit is allowed, or other means used to move the bowels, it is frequently a difficult matter to control them; and the patient is in no condition to stand reducing measures.

If strong medicines are given to relieve constipation they often *irritate the stomach and bowels and thus offer a well-prepared surface for the lodgment of the fungus, where it is not easy of recognition or removal.*

**Mechanical Means.** It has been the custom of old-school physicians, for years, to cauterize the throat and make other irritating applications, which not only do no good but are positively hurtful.

One of the latest writers and highest allopathic authorities on Diphtheria says :—<sup>1</sup>

“As far as concerns the *mechanical* detachment of the pseudo-membranes, as being sources of inflammation, it certainly requires only a brief reference to the pathology of the process to make evident the uselessness and danger of such an interference. It can not be enough insisted on, that in diphtheria of the mouth and throat the contagious material is not confined to the false membranes, but is present throughout all the mucous membranes involved, as well as noticeably in the fluids of the mouth, in greater or less quantity.

If now we attempt the mechanical detachment of the deposit, which in the beginning of the process is still quite firmly adherent, it always results in the production of small wounds of the surface of the mucous membrane, as shown by bleeding points

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<sup>1</sup> Oertel in Ziemssen's Cyclopædia, Vol. I, p. 672.

where the individual capillaries have been torn. The possibility of an easier and more considerable entrance of vegetable parasites and products of decomposition into the tissues is thus readily afforded, and, as proved experimentally, the life of the patient is put in far greater danger.

The immediate result of such mechanical violence is, as a rule, the rapid reproduction of the pseudo-membranes: and at the same time they spread over a greater extent, owing to the increase of local inflammation and fibrinous exudation.

But the final results, where such a procedure has been resorted to, are extraordinarily bad; the vast majority of patients, and, where the diseased process is intense, the whole of them, succumb to the infection of the general system."

**Caustics.** On the use of caustics the same writer says:

"Not only is it impossible completely to annihilate the diphtheritic contagious material, even by repeated cauterization, when it has once become diffused throughout the whole buccal cavity,—though every patch be never so carefully destroyed,—but it is also impossible to combat the local disease by attempts to convert the specific inflammation into a simple one by these cauterizations.

The immediate result of even the most prudent cauterization is always a certain degree of mechanical violence to the inflamed mucous membrane, and the more circumspectly we endeavor to destroy all the grayish-white deposits, the more is the sub-epithelial tissue of the mucous membrane laid bare, the resulting slough failing to afford thorough protection in the way of a covering.



In the cavity of the mouth, and in the mucus and saliva it contains, growths of micrococcus, as products of decomposition, are present in sufficient quantity to easily find their way into the lacerated parts of the mucous membrane, even though these be scarcely as large as a pin's head, or only discernible with the microscope; and besides, the increased inflammation caused by the mechanical and chemical irritation furnishes a much more favorable soil.

There can be no doubt, then, that the unfavorable results which have been attained on all sides by cauterizations, more or less energetically practiced, must put a stop to this procedure, even if in its stead we should be obliged to resort to the opposite, the purely expectant and symptomatic treatment."

Oertel goes on to show the uselessness of attempting to dissolve the membrane by powerful *chemical means* and the evil effects which follow such a procedure.

In the *Nashville Journal of Medicine and Surgery*<sup>1</sup> an extract is given from *The American Medical Bi-Weekly*, which mentions that, at a recent meeting of the Therapeutical Society, various remedies for diphtheria were discussed, the result being in favor of a tonic treatment and the resorting to local applications as little as possible, those of a caustic nature to be avoided altogether. Two of the members agreed in condemning the use of caus-

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<sup>1</sup> Vol. XX—new series—July, 1877, p. 43.

tics, the nitrate of silver in particular, it being an especially unsafe application, known to produce true wounds in the pharynx.

Is it not strange, then, in view of these facts, that caustics and other severe local applications are still used by the majority of practitioners?

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### DIETETICS.

Recognizing the peculiarly weakened condition of the digestive organs care should be taken not to overburden them.

The disease having been pronounced *asthenic*—one characterized by great debility—it has been customary in the ordinary practice to cram the stomach with rich and stimulating food. As a rule we give all the good, nourishing food, that the stomach is capable of receiving and digesting. It has been a favorite practice of ours, and beneficial to the throat, to have the patient eat crackers dry, or dry toast, without drinking; and sometimes we have allowed parched corn.

The object is twofold, first to excite saliva, an important solvent to act upon the false membrane, and second, to operate mechanically, yet gently, in break-

ing away the membrane and so clearing out the mouth and fauces.

In prescribing the use of alcoholic drinks, I wish to be understood, as placing them among remedies, and not among articles of aliment.

They must be carefully and moderately used. In the form, of toddy, French Brandy, or American grape Brandy is to be preferred to any other alcoholic liquor.

## CASES.

Since the last week of September, 1876, a period of eleven months, we have treated one hundred and seventy-six cases of well-defined diphtheria, in regard to which I shall give a few facts.

Number of cases treated,.....	176
Number of cases cured,.....	165
Number of cases died,.....	11

## SEX.

Of this number sixty-three were males and one hundred and thirteen females.

## AGE.

Under five years,.....	54, of which 7 died.
Between five and ten years, .....	38,   “   3   “
Between ten and twenty years, ...	44,   “   1   “
Over twenty years, .....	40,   “   none   “
Total number of cases,.....	176,   “   11   “

More of the cases occurred in October than in any other month.

## CONCOMITANTS.

As concomitants of this disease we have found—

**Rash**—a miliary eruption—sometimes general and again only in the axillæ or on parts of the body where there is the greatest amount of heat.

Four, of our one hundred and seventy-six patients, had this eruption.

**Rheumatism** : is also occasionally an accompaniment of diphtheria.

We had two cases, both of which yielded readily to Bryonia and Rhus Tox.

**Epistaxis** : is not uncommon and may occasion considerable trouble.

In the five cases presenting this symptom we found Belladonna, Capsicum or Nitric Acid most useful.

**Strangury** : may be present in some cases ; but we found it readily relieved by a few doses of Cantharides.

**Coldness** : or spells of chilliness and sinking may be troublesome.

We have employed Camphor and China, temporarily, with success in such cases.



## SEQUELÆ.

Diphtheria, like Scarlatina, has its sequelæ, which sometimes are of a most serious character. I shall mention such as we observed in our cases.

**Cough:** frequently follows an attack of diphtheria, and must be treated according to the indications.

In our cases nine required special after-treatment for cough, which was cured by Bryonia, Kali Bichromicum, Hepar Sulphur or Tartar Emetic.

**Glandular Abscess:** is met with occasionally.

We had it in one case and Hepar Sulphur was our remedy.

**Otorrhœa:** is also a sequela of this disease.

We found Pulsatilla and Calcarea Carb. successful in our one case.

**Ozæna:** may sometimes be quite troublesome.

In four cases it occurred and we used Pulsatilla, Mercurius and Aurum with success.

**Erysipelas:** we have seen in but one case out of the whole number, and treated it successfully with Belladonna.

**Ulcers.** After the false membrane is broken away the tonsils or walls of the pharynx may be left in an ulcerated or sloughing condition.

In such case it may be necessary to employ the Nitric Acid again, one of its observed effects, when used in an undiluted form, being a sloughing and gangrene in the throat.

*Arsenicum* is sometimes indicated, especially when *Mercurius Iodatus* has failed to reduce glandular enlargements, or when *Nitric Acid* has failed to remove ulcers from the mouth or throat; especially when there is great prostration, looseness of bowels, nausea, pallor or bloatedness of face, thirst and burning in throat, difficult swallowing, and aversion to food.

*Dr. Grauwogl*<sup>1</sup> advises the use of *Arsenicum*, sixth attenuation, to overcome the "gangrenous tendency," and thinks the alcohol and this remedy should be used in conjunction. As I have already mentioned we have used the Donovan's Solution of Arsenic with better results than the Arsenious acid.

Ulceration very rarely occurs in cases where alcohol has been used.

In this connection I may mention that we have

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<sup>1</sup> Raue's Pathology and Diagnostics, p. 123.

been investigating the antiseptic and anti-fungous powers of another promising agent, the *Oil of Sassafras*. We can not, at present, speak of its uses, as we hope to do at a future time.

**Paralysis:** generally local or partial, but sometimes general, is an occasional effect of diphtheria. We have seen it in a few persons, in a progressive form, affecting almost every portion of the body: but have never yet had a fatal case, except where the heart was involved. We have not seen this trouble last any great length of time: nor has it returned after having once disappeared. Nature, if let alone, will often overcome this form of paralysis, but we have used with greatest benefit Nux Vomica and Rhus Tox.

**Albuminuria:** in diphtheria occurs at various stages of the disorder—in some cases even during the first few days. It not rarely comes on insidiously, and may manifest its presence by no peculiar constitutional symptoms. There can be, however, little doubt of the grave import of its appearance, though as yet its exact significance has not been accurately defined.

*Hillier*<sup>1</sup> examined thirty-eight very severe cases

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<sup>1</sup> Diseases of Children, Meigs and Pepper, p. 673.

in regard to this point, and found albumen present in thirty-three, thirty-two of which proved fatal, while of the five free from albuminuria, all recovered.

*Bouchut* has known it (the albumen) to persist after convalescence, and finally produce, as in Bright's disease, anasarca and hydrothorax.

When this trouble is met with it must be treated according to the indications.

When death results from one of the Sequelæ, either disease of the kidneys or paralysis, it may be deferred for weeks, or even for several months.

But I would not be understood as attaching special value to the presence of albumen in the urine of a diphtheritic patient, as a diagnostic sign or characteristic.

It is found, likewise, in cases of scarlet fever, pneumonia, measles and yet other forms of acute disease. Sometimes, weeks or months after an apparently full recovery from diphtheria, Bright's disease is developed out of lymphatic, venous or cardiac derangements left behind.

Cantharides, Arsenicum, Nitric Acid, and perhaps also Kali Bichromicum, are among the remedies best calculated to anticipate or remove such conditions.

### MODES OF DEATH.

When diphtheritic patients do not recover, death usually comes from the extensive blood poisoning and exhaustion, and occurs usually from the seventh to the tenth day of the disease.

The croupoid form is more suddenly fatal, death occurring sometimes in twenty-four hours or less.

In nine of our fatal cases death occurred from general blood poisoning and exhaustion.

In one of these there was gangrene; in another, severe hemorrhage from mouth, nose and bowels; and in another, extensive cutaneous as well as epithelial development of membrane.

One patient, with the croupoid form of the disease, died by strangulation on the third day; and one died from paralysis of the heart—a girl seventeen years of age—whose throat had been clear of membrane for more than a week previous to the day of her death.

I should mention that, this subject had never menstruated and had always been delicate.



### PREVENTIVE MEASURES.

In the way of medicines we have found no prophylactics. When diphtheria has been prevalent we have advised particular care to be taken to *avoid colds, disordered stomach*, and to be watchful and prompt in treating any affections pointing to the throat and nasal ducts.

When the disease has appeared in families where there were children, we have had those in health at once removed from the sick, and kept away until the disease had disappeared and the sick-room was as thoroughly disinfected as possible.

I would here mention that my preventive, as well as curative, measures have been in accord with my views of the pathology, especially the ætiology, of the disease; and yet, if the *causa morbi* be not *vegetable fungi—micrococci*—but some other invisible influence not yet recognized, I could, with present knowledge, pursue no other course of treatment.

Our therapeutics should not be based exclusively upon any theory; but must be governed by all that we can learn of the nature and causes, as well as immediate symptoms, of disease.

While we recognize the law *similia*, in special therapeutics, we must not fail to recognize other laws in general therapeutics, where we have to deal with things mechanical, chemical and hygienic—things preventive and disinfective.

Future investigations may demonstrate the unsoundness of our present views of the specific cause of diphtheria and may teach us many things we do not now so much as dream of. When that time comes doubtless our therapeutics will be changed.

We are required to act up to the light of to-day and not that of to-morrow.

## CONCLUSIONS.

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- I. Diphtheria is a contagious and infectious disease.
- II. It does not attack persons in health. There must be an inflamed or hyperæmic mucous membrane, or an abraded skin, for the lodgement and propagation of the peculiar germs.
- III. The *specific cause* of diphtheria dwells in minute vegetable organisms—fungi—commonly called micrococci; and without such there can be no diphtheria.
- IV. The disease is at first local, confined to the point of infection, but quickly becomes general by penetration, absorption and diffusion through the body.
- V. Caustics are not successfully used in diphtheria because they are too irritating. They only plow and harrow the field for a wider and deeper planting of the typical germs of the dis-

ease, without the ability to destroy or arrest them.

- VI. Alcohol is destructive to the germs, while it quickens the circulation in the parts affected and so hastens the detachment of the membrane; and *if used in season* it may be sufficient to arrest the development of the disease.
- VII. The physician when called upon to treat diphtheria, in the prodromic stage, must employ the means usual in ordinary sore throat, plus the alcohol gargle. But when he finds the typical membrane present other means, such as Nitric Acid, Kali Bichromicum, Calcareo Chlor., etc., must be brought into use.
- VIII. The croupoid form of diphtheria can be cured, and the prognosis in cases, in general, is not so unfavorable under the influence of Kali Bichromicum, Spongia, Hepar Sulphur, etc.
- IX. External applications such as liniments, poultices, and packs are not advisable, except the slice of fat bacon in the croupoid form.
- X. Cathartics are not needed, are only productive of harm and should therefore be prohibited.
- XI. In diphtheria Tracheotomy is almost always fatal, and should not be practiced.

XII. The food supply should be such as the stomach can readily digest; anything beyond that being positively hurtful.

XIII. The isolation of the patient is of great importance, as it lessens the intensity of the disease and protects other members of the household and the community from infection.

XIV. The disinfection of a room, or of articles in it, is best accomplished by the free use of alcohol, in spray and vapor, and the burning of sulphur, every particle of mouldy or loose wall-paper being removed.

Articles of clothing, used by the patient, should undergo a fumigation with sulphur; and all linen and blankets should also be well washed and then sprinkled with alcohol before being laid away for future use.

XV. The convalescent diphtheritic patient should, for some weeks, avoid over-taxing the digestive organs, the muscular system, the brain and nerves, and likewise keep from being chilled.



## CONTENTS.

	PAGE.
HISTORY OF DIPHTHERIA, .....	5
Rates of Mortality, .....	6
PATHOLOGY, ÆTIOLOGY, DIAGNOSIS,.....	8
Stages—hyperæmia—exudation, .....	12
Lodgement and propagation of fungi,.....	13
Worse in certain persons, .....	16
Characteristics of the exudate, .....	17
Origin of the fungus, .....	18
TREATMENT, .....	20
Camphor, Aconite, Capsicum, .....	21
Belladonna, Merc. Iod., Gargles, .....	22
Nitric Acid, .....	23
Arsenicum, Chloride of Lime, .....	25
Potash preparations, Carbolic Acid, .....	26
Alcohol, .....	27
Salicylic Acid, .....	30
Flowers of Sulphur, .....	31
Spongia, .....	32
Kali Bichromicum, .....	33
Hepar Sulphur, .....	34
Bromine, .....	35
INJURIOUS TREATMENT, .....	36
Tracheotomy, .....	36
External Applications, .....	37
Cathartics, .....	37
Mechanical Agents, .....	38
Caustics, .....	39
DIETETICS, .....	41
CASES TREATED, 176 in number, .....	43
Concomitants, .....	44
Sequelæ, .....	45
Modes of Death, .....	49
PREVENTIVE MEASURES, .....	50
CONCLUSIONS, .....	52







